Amendments to the Claims

This listing will replace all prior versions and listings of claims in the application.

Listing of Claims:

1. (Previously Presented) A system for transmitting a DS3 data stream over a few twisted pair conductors comprising:

a high speed data interface adapted to receive said DS3 data stream and to inversely multiplex said high speed data stream into four parallel data streams that each comprise an approximately 11 megabits per second stream (Mbps),

a framer adapted to receive each of said parallel data streams, and to generate a stream of packets, each packet having a packet index number and a packet stream number corresponding to its respective said parallel data stream, and

a plurality of modems adapted to modulate each corresponding stream of packets having a data rate of approximately 13 Mbps onto a twisted pair conductor.

2. (Previously Presented) The system of claim 1, wherein each parallel data steam is placed into a 64 byte, 512 bit packet comprising a framing byte to facilitate location of the beginning of the packet at a receiver, a second byte comprising the packet index number and the packet stream number to facilitate the joining of four packets from the four parallel data streams to form a DS3 stream at a receiver, the packet index number being incremented as each packet is sent on a twisted paid conductor, and remaining bytes being information bytes that comprise data from the DS3 stream.

3. (Original) The system of claim 1, wherein the number of parallel data streams is fewer than twenty two.

4. (Previously Presented) The system of claim 1, wherein said bits of said DS3 data stream are directed to said plurality of parallel data streams in accordance with a round robin pattern.

5. (Currently Amended) The system of claim 2, wherein ~~wherein~~ said second byte comprises stuffing bits to allow the inverse multiplex operation of said high speed data interface to vary the number of bytes in a packet.

6. (Previously Presented) A system for transmitting a high speed data stream over a plurality of twisted pair conductors comprising:

a high speed data interface adapted to receive said high speed data stream and to inversely multiplex said high speed data stream into a plurality of parallel data streams,

a framer adapted to receive one of said parallel data streams, and to generate a stream of packets, each packet having a packet index number,

a plurality of modems adapted to modulate each corresponding stream of packets onto a twisted pair conductor; and

a processor adapted to identify a loopback code in said high speed data stream, wherein said processor is further adapted to pass through a first received loopback code to another device, and to enter a loopback mode if an n^{th} subsequent loopback code is received without an intervening loop down code.

7. (Canceled)

8. (Previously Presented) An apparatus for transmitting a high speed data stream over a plurality of twisted pair conductors comprising:

a high speed data interface adapted to receive said high speed data stream and to inversely multiplex said high speed data stream into a plurality of parallel data streams,

a framer adapted to receive one of said parallel data streams, and to generate a stream of packets, each packet having a packet number and stream identifier,

a plurality of modems adapted to modulate each corresponding stream of packets onto a twisted pair conductor, and

at least one switch adapted to configure said apparatus as a repeater unit or a non-repeater unit, said apparatus being operable as a repeater when said high speed data interface thereof is connected to a second said high speed data interface of a second said apparatus to allow a high speed data stream to pass between the two said high speed data interfaces and data streams to be transmitted to and received from said plurality of modems of each of said apparatus and said second apparatus via twisted pair conductors, wherein, in each of said apparatus and said second apparatus, said plurality of modems demodulates a plurality of parallel signals received over said twisted pair conductors into a plurality of data streams each comprising a stream of packets, each said packet having a corresponding said stream identifier and said packet number, a deframer receives said parallel streams of packets and synchronizes said packets from said parallel streams based on said stream identifiers and said packet numbers, and said high speed data interface receives said plurality of synchronized parallel data streams and multiplexes said plurality of parallel data streams into a high speed data stream.

9. (Currently Amended) The apparatus of claim [[7]]8, wherein said at least one switch is further adapted to configure said apparatus as a west (LU) or east (RU) repeater unit, said west (LU) repeater unit being closest to a central office and said each (RU) repeater unit being closest to customer premises equipment.

10. (Currently Amended) The apparatus of claim [[7]]8, wherein said at least one switch is further adapted to configure said system as a first repeater or a second repeater unit.

11. (Original) The system of claim 1, wherein said modems are adapted to modulate data into one of a high frequency band or a low frequency band based on a transmit direction.

12. (Previously Presented) The apparatus of claim 8, further comprising a front panel having a high speed data stream interface, and a rear interface, said system being adapted to switch between said front panel interface and said rear interface based on a user input.

13. (Previously Presented) The apparatus of claim 12, wherein said user input is an information bit in a back plane.

14. (Canceled)

15. (Canceled)

16. (Previously Presented) The apparatus of claim 8, wherein said apparatus is adapted to perform 1:1 protection switching and said apparatus is a redundant, non-repeater unit, said processor being further adapted to switch between an active mode, and a standby mode for protection switching.

17. (Previously Presented) The apparatus of claim 8, further comprising an LED adapted to display a loss of signal status.

18. (Previously Presented) The apparatus of claim 8, further comprising an LED adapted to display a loopback mode status.

19. (Previously Presented) The apparatus of claim 8, further comprising an LED adapted to display a remote alarm status.

20. (Previously Presented) The apparatus of claim 8, further comprising an LED adapted to display a normal operation status.

21. (Previously Presented) The apparatus of claim 8, further comprising an LED adapted to display a standby mode status.

22. (Previously Presented) The apparatus of claim 8, further comprising an LED adapted to display a system failure status.

23. (Previously Presented) The apparatus of claim 8, further comprising an LED adapted to display a status of one of said plurality of parallel data streams.

24. (Previously Presented) The apparatus of claim 23, further comprising a plurality of LED's adapted to display a loss of signal status corresponding to each of said plurality of parallel data streams.

25. (Previously Presented) A system for receiving a DS3 data stream over a few twisted pair conductors comprising:

a plurality of modems adapted to demodulate a few parallel signals received over respective ones of four twisted pair conductors that each comprise an approximately 13 megabits per second (Mbps) stream into a few data streams each comprising a stream of packets, each packet having a stream identifier corresponding to its respective one of the parallel signals and a packet index number;

a deframer adapted to receive said parallel streams of packets, and to synchronize packets from said parallel streams based on said stream identifiers and said packet numbers; and

a high speed data interface adapted to receive said plurality of synchronized parallel data streams and to multiplex said plurality of parallel data streams into said DS3 data stream.

26. (Previously Presented) The system of claim 25, wherein said bits of said DS3 data stream are obtained from said few parallel data streams in accordance with a round robin pattern.

27. (Previously Presented) The system of claim 25, wherein each of said plurality of synchronized parallel data steams has a data rate of approximately 11 Mbps.

28. (Previously Presented) A system for receiving a high speed data stream over a plurality of twisted pair conductors comprising:

a plurality of modems adapted to demodulate a plurality of parallel signals received over said plurality of twisted pair conductors into a plurality of data streams each comprising a stream of packets, each packet having a stream identifier and a packet number;

a deframer adapted to receive said parallel streams of packets, and to synchronize packets from said parallel streams based on said stream identifiers and packet numbers;

a high speed data interface adapted to receive said plurality of synchronized parallel data streams and to multiplex said plurality of parallel data streams into said high speed data stream; and

a processor adapted to identify a loopback code in said high speed data stream, wherein said processor is further adapted to pass through a first received loopback code to another device, and to enter a loopback mode if an n^{th} consecutive loopback code is received without an intervening loop down code.

29. (Canceled)

30. (Previously Presented) The apparatus of claim 8, wherein said apparatus and said second apparatus are configured to operate as a first said repeater connected to a second said repeater, said second repeater comprising a third said apparatus and a fourth said apparatus having their corresponding said high speed data interfaces connected to each other and configured to operate as said second repeater, said high speed data interface, said framer and said plurality of modems in each of said apparatus and said third apparatus being configured to process a DS3 stream to modulate each said parallel data stream inversely multiplexed therefrom as said corresponding said steam of packets onto a twisted pair conductor having a data rate of approximately 13 Mbps used over a maximum range of approximately 2,300 feet.

31. (Previously Presented) The apparatus of claim30, wherein said at least one switch is further adapted to configure said apparatus as a west (LU) repeater unit closest to a central office or a east (RU) repeater unit closest to customer premises equipment.

32. (Previously Presented) The apparatus of claim 31, wherein said at least one switch is further adapted to configure said apparatus as operable in said first repeater or said second repeater.

33. (Currently Amended) The apparatus of claim [[29]]8, wherein said repeater is connected to a third said apparatus, said repeater is closer to a test unit and a central office than said third apparatus which is downstream and closer to customer premises equipment, said repeater and said third apparatus each being configurable to selectively pass through a received loopback code and selectively enter a loopback mode when a selected n^{th} loopback is received without an intervening code, said third apparatus being programmed to respond to a first loopback code and said apparatus and said second apparatus in said repeater being programmed to ignore and pass through said first loopback code and to enter a loopback mode when a second subsequent loopback code is received.

34. (Previously Presented) A method of transmitting a DS3 data stream over a few twisted pair conductors comprising:

receiving said DS3 data stream;

inversely multiplexing said DS3 data stream into a four parallel data streams that each comprise and approximately 11 megabits per second (Mbps) stream;

generating a stream of packets from each said parallel data stream, each packet having a stream identifier corresponding to its respective said parallel data stream and a packet number, and

modulating each corresponding one of the four streams of packets onto a corresponding twisted pair conductor having a data rate of approximately 13 Mbps.

35. (Previously Presented) The method of claim 34, wherein said bits of said DS3 data stream are directed to said plurality of parallel data streams in accordance with a round robin pattern.

36. (Previously Presented) The method of claim 34, further comprising determining from said stream identifier received from each of a plurality of the four streams transmitted on respective twisted pair conductors that a miswire condition exists between at least two of the twisted pair conductors.

37. (Previously Presented) A method of transmitting a high speed data stream over a plurality of twisted pair conductors comprising:

receiving said high speed data stream;

inversely multiplexing said high speed data stream into a plurality of parallel data streams,

generating a stream of packets from each said parallel data stream, each packet having a stream identifier and a packet number,

modulating each corresponding stream of packets onto a corresponding twisted pair conductor,

identifying a loopback code in said high speed data stream, and

passing through a first received loopback code to another device and entering a loopback mode if an n^{th} consecutive loopback code is received without an intervening loop down code.

38. (Canceled)

39. (Canceled)

40. (Canceled)

41. (Canceled)

42. (Original) The method of claim 34, wherein said modulating step further comprises modulating data into one of a high frequency band or a low frequency band based on a transmit direction.